Next, we give a general outline and a detailed list of topics we will cover in our tutorial. The presenter and the anticipated durations are also listed.

Part 0: **Introduction** C. Faloutsos

(a) Motivation, apps, and challenges of abnormality detection 10 min
(b) Prevalence of graph data in the real world
(c) Problem revisited for graph datasets
(d) Introduction to problem settings: static versus dynamic, supervised versus (semi-)supervised.

Part I: **Anomaly detection in static data** C. Faloutsos

(a) Overview: Outlier detection in clouds of data points 15 min
  i. Outliers in numerical data points; distance-based [1], density-based [14].
  ii. Outliers in categorical data points [5]
(b) Anomaly detection in *graph* data 45 min
  i. Anomalies in unlabeled graphs [4], [18]
  ii. Anomalies in node-/edge-labeled graphs [7], [12]

Part II: **Event detection in dynamic data** L. Akoglu

(a) Overview: Event detection in time series of data points 15 min
  i. Change detection in sequence data [6]
  ii. Learning under concept drift [20]
(b) Event detection in time series of *graph* data 45 min
  i. Graph-distance based methods [15]
  ii. Change detection based on graph connectivity [3], [17]

Part III: ***Graph*-based fraud detection** L. Akoglu

(a) Theory and Algorithms: Introduction to relational learning 20 min
  i. Collective classification for graph data [16], [10]
  ii. Probabilistic relational models [19], [8]
(b) Applications: Relational learning for fraud detection 30 min
  i. Online auction fraud [13], review/opinion spam [2]
  ii. Accounting fraud risk [9], securities fraud [11]

We will provide hand-outs for the audience, including categorized reference lists for each part, and relevant resources (e.g., links to software, datasets) well in advance of the conference. Further, we will publish the lecture notes, slides, and resources online at `http://www.cs.cmu.edu/~lakoglu/icdm12/` (under development). Links to example slides and videos from earlier talks by the tutors can be viewed at the same address.

We note that, due to the limit in number of citations, we could include 1-2 references per each section. The original tutorial consists of a long list of related work (see a more comprehensive list at the above address). We will give particular attention to highlighting their key ideas and connections. We will also discuss their pros and cons in various contexts (e.g. parameter tuning, scalability, etc).